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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,276	06/29/2001	Y. Tom Tang	PF-0609 USN	6626

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EXAMINER	
ROBINSON, HOPE A	
ART UNIT	**PAPER NUMBER**
1653	

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/806,276	TANG ET AL.	
	Examiner	Art Unit	
	Hope A. Robinson	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-23 and 25-45* is/are pending in the application.

4a) Of the above claim(s) *21,22 and 32-45* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *23 and 25-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's response to the Office Action mailed September 8, 2003 on December 12, 2003 is acknowledged. The Declaration filed on December 12, 2003 under Rule 131 or 132 has been received and entered.

Claim Disposition

2. Claims 1-20 and 24 have been canceled. Claims 23, 25 and 28 have been amended. Claims 21-23 and 25-45 are pending. Claims 23 and 25-31 are under examination. It is noted that applicant's remarks on page 9 indicate that claims 21-45 are pending, however, applicant canceled claim 24.

3. The following rejections remain or are applicable:

Claim Objection

4. Claim 23 is objected to because the claim recites a Markush list and item (b) does not end with a comma (,).

Correction is required.

Restriction Requirement

5. On page 10 of the response applicant states that the restriction requirement is still traversed and requests a rejoinder indicating that the rejection under 35 U.S.C. 102 should be withdrawn. Applicant also states that the Administrative Instructions under the Patent Cooperation Treaty Annex B provides guidelines with regard to unity of invention between protein and the polynucleotide that encodes it. This argument is not persuasive because the Administrative Instructions provided only one example not a requirement/rule. The protein and DNA are functionally distinct, have different modes of operation and are structurally distinct, thus separate inventions. Furthermore the claimed invention lacks a special technical feature and applicant's assertion that the claimed invention is free of the prior art is not accurate. Therefore, the restriction requirement of record is proper and final.

6. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. **Process claims that depend from or otherwise include all the limitations of the patentable product** will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of *In re Ochiai, In re Brouwer* and 35 U.S.C. § 103(b)," 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

7. The amendment filed December 12, 2003 is objected to under 35 U.S.C. 132 because the amendment introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: claim 23 was amended to recite in item (b) "polypeptide having antigen binding

activity" and item (c) "polypeptide having GTPase effector activity" (see also items "e" and "f") and there is no support for this in the instant specification. Applicant on page 9 of the response points to pages 13-14 and page 47 for support. These pages provide a discussion that the claimed protein is chemically and structurally similar to MSE55 of the Borg family and immunoglobulin-kappa light chain. The fact that the claimed sequence is similar to another protein does not necessarily bestow function. Generally, the art acknowledges that function cannot be predicted based solely on structural similarity to a protein found in the sequence databases.

Applicant is required to cancel the new matter in the reply to this office action.

Claim Rejections-Utility Rejections Under 35 USC § 101 And 35 USC 112, First Paragraph

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 23 and 25-31 remain rejected under 35 U.S.C. 101 because the claimed invention lacks a credible, substantial, specific, or well established utility. Claims 23 and

25-31 are directed to a polynucleotide encoding a polypeptide, vector, host cell and a method of making the polypeptide (bone marrow derived serum proteins). The claimed polynucleotides are not supported by either a specific and substantial asserted utility or a well established utility. The specification fails to provide objective evidence of any activity for the encoded proteins. A well established utility is a specific, substantial, and credible utility that is well known, immediately apparent or implied by the specification's disclosure of the properties of a material. There is no specific disease or specific function that is suggested for the polynucleotides or the encoded polypeptides. It is noted that page 1 of the specification indicates that the invention provides new bone marrow derived serum proteins and polynucleotides which are useful in the diagnosis, prevention, and treatment of cancer, immune disorders, infections and vascular disorders, however, no specific association is made or demonstrated. Page 4 of the specification states that methods are provided for treating or preventing a disorder associated with decreased or activity of BMDSP (bone marrow derived serum proteins), said method comprising administering to a subject in need of such treatment an effective amount of a pharmaceutical composition comprising the polypeptide. No real association is made between a specific disorder/disease and the claimed products. What disorder/disease results from a decreased expression or activity of BMDSP, the specification does not disclose specific information. In addition, pages 24-26 state that BMDSP appears to play a role in cancer, immune disorders, vascular disorders and infections. A laundry list of diseases/disorders (page 25) is provided, however, no exemplification is provided, via a working example. Thus, no empirical evidence exists on the record to demonstrate the association as claimed between the claimed BMDSP and the list of diseases/disorders provided.

The specification asserts that the products of the invention can be used (1) as drugs for the treatment or prevention of cancer, immune disorders etc., (2) in diagnosing disease associated with BMDSP and (3) as probes/primers. As for drugs for the treatment or prevention of cancer, immune disorders, etc., this asserted utility is not substantial. The specification does not disclose any particular conditions wherein there is a deficiency, overproduction, or altered form of the claimed polypeptides. The fact that the polynucleotide can be found in libraries of cells isolated from for example, cancerous tissues or immune system cells would not indicate to one of skill in the art that BMDSP is involved with any of these conditions. Even if it were differentially expressed in cancerous tissues, for example, there is no indication regarding how to develop a drug to treat cancer based on BMDSP, because there is no information disclosed regarding the role BMDSP plays in healthy tissue. Significant further experimentation would be required of the skilled artisan to identify individuals who would benefit from such a drug, and then to determine a best course of treatment. There is no disclosure, for example, of how to assay for improvement or intolerable levels of side effects or dosages of the drug. Since this asserted utility is not presented in mature form, so that it could be readily used in a real world sense, the asserted utility is not substantial.

It is asserted that the invention can be used in diagnosing disease associated with BMDSP, this assertion is not substantial. The specification does not disclose any specific diseases associated with altered levels or forms of BMDSP as discussed above. Significant further experimentation would be required of one skilled in the art to identify individuals having such a disease. There is no indicia, for example, of any symptoms associated with such a disease/disorder. As this asserted utility is not presented in mature form, so that it could be readily used in a real world sense, the

asserted utility is not substantial. The assertion is made of a use as probes/primers; however, this utility is not specific, as this can be done with any polynucleotide. The examples on pages 40+ do not demonstrate nor describe the claimed invention. A search of the claimed sequences produced references that did not substantiate the asserted utilities, in fact, Alberts et. al. (The Journal of Biological Chemistry, vol. 273, pages 8616-8622, 1998) teach a sequence that is homologous to the claimed SEQ ID NO: 4, however, the encoded protein is said to be a RhoA effector protein. In view of the foregoing, and absent data/evidence, the claimed invention lack utility. See *Brenner v. Manson*, 383, U.S. 519, 535-36, 148 USPQ 689, 696 (1966), noting that "a patent is not a hunting license. It is a reward for the search, but compensation for its successful conclusion". A patent is therefore not a license to experiment. See also the Utility Guidelines available at www.uspto.gov.

9. Claims 23-31 remain rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art would not know how to use the claimed invention so that it would operate as intended without undue experimentation.

10. Claims 23, 25-29 and 30 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 23 and the dependent claims hereto are directed to an isolated polynucleotide encoding a polypeptides, said polypeptides are said to have antigen binding activity and GTPase

effector activity. However, there is no support for this in the instant specification. The disclosure provides a discussion that the claimed protein is chemically and structurally similar to MSE55 of the Borg family and immunoglobulin-kappa light chain. Generally, the art acknowledges that function cannot be predicted based solely on structural similarity to a protein found in the sequence databases. For example, Skolnick et al. (2000, Trends in Biotech. 18:34-39) state that knowing the protein structure by itself is insufficient to annotate a number of functional classes, and is also insufficient for annotating the specific details of protein function (see Box 2, p. 36). Similarly, Bork (2000, Genome Research 10:398-400) states that the error rate of functional annotations in the sequence database is considerable, making it even more difficult to infer correct function from a structural comparison of a new sequence with a sequence database (see especially p. 399). Such concerns are also echoed by Doerks et al. (1998, Trends in Genetics 14:248-250) who state that (1) functional information is only partially annotated in the database, ignoring multi functionality, resulting in under predictions of functionality of a new protein and (2) over predictions of functionality occur because structural similarity often does not necessarily coincide with functional similarity. Smith et al. (1997, Nature Biotechnology 15:1222-1223) remark that there are numerous cases in which proteins having very different functions share structural similarity due to evolution from a common ancestral gene. Brenner (1999, Trends in Genetics 15:132-133) argues that accurate inference of function from homology must be a difficult problem since, assuming there are only about 1000 major gene superfamilies in nature, then most homologs must have different molecular and cellular

functions. Finally, Bork et al. (1996, Trends in Genetics 12:425-427) add that the software robots that assign functions to new proteins often assign a function to a whole new protein based on structural similarity of a small domain of the new protein to a small domain of a known protein. Such questionable interpretations are written into the sequence database and are then considered facts. Therefore, based on the discussions above concerning the specific examples of structurally similar proteins that have different functions, along with the art's recognition that one cannot rely upon structural similarity alone to determine functionality, the specification fails to provide support for the claimed function.

The present invention is also directed to an isolated polynucleotide that encodes a polypeptide and fragments thereof and the claims are directed to the same, and a naturally occurring polynucleotide that is 90% identical to SEQ ID NOS: 3 and 4 (claim 30). The specification lacks description or exemplification of any activity for the polynucleotides and the encoding polypeptides. Page one of the specification states that the intended use of the claimed products is for diagnosis, treatment, and prevention of cancer, immune, infections etc. The claim is directed to a fragment and does not recite a functional limitation to indicate that the function as asserted for the protein is retained. There is no function associated with polynucleotides encoding polypeptides having at least 90% identity to SEQ ID NOS: 3 and 4 or biological activity associated with fragments thereof defined. The specification and claims provide no measurable end point to allow one of skill in the art to be able to determine if a polynucleotide that is in possession of another, and having at least 90% identity to SEQ ID NO: 3, for example,

falls within the description of the polynucleotides as claimed. For example, if another were in possession of a polynucleotide encoding a polypeptide having at least 90% identity to SEQ ID NO: 3, and this polynucleotide encodes a polypeptide having extraordinary activity, such as three times more ability to treat cancers than that encoded polypeptide disclosed in the instant specification, then this polynucleotide in the possession of another is not described in the instant specification and would not be considered to fall within the limitations of the claims, regardless of the 90% identity limitation. The specification does not describe polynucleotides encoding polypeptides having at least 90% identity to SEQ ID NO: 3 or 4 and do not decrease the activity of BMDSP, for example. The claims must recite a specific, measurable activity such that one can recognize a polynucleotide as that claimed, or a fragment thereof. Therefore, absent adequate written description with regard to a polynucleotide that encodes a polypeptide having at least 90% identity to SEQ ID NOS: 3 and 4, one of skill in the art would have to engage in undue experimentation to determine if the fragment retained the asserted association as disclosed on page 25 of the instant specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

11. Claims 23 and 31 remain rejected under 35 U.S.C. 102(a) over Alberts et al. (The Journal of Biological Chemistry, vol. 273, No. 15, pages 8616-8622, April 10, 1998).

Alberts et al. teach a polynucleotide sequence that is homologous to the sequence contained in SEQ ID NO: 4 of the instant application which encodes SEQ ID NO: 2. The sequence taught by Alberts has 60 contiguous nucleotides which are identical to SEQ ID NO: 4 (claim 31, see the sequence alignment) and teach the encoded protein (claim 23, page 8616 of the reference). As claim 23 is directed to a polynucleotide encoding a protein that is (d) an immunogenic fragment consisting of at least 20 contiguous amino acid residues of an amino acid sequence of SEQ ID NO: 2 (encoded by SEQ ID NO: 4), the limitations of the claims are met by this reference.

12. Applicant's arguments and the Declaration filed September 12, 2003 have been considered, however, are not persuasive, thus the rejections of record remain. It is noted that applicant cited several decisions for example *Standard Oil Co. v. Montedison, Envirotech Corp. v. Al George, Inc., Raytheion v. Roper, Nestle v. Eugene* etc., asserted as relevant to applicant's arguments, which have been considered. The arguments presented in the response and the Declaration will be discussed concurrently below as applicant incorporates the statements made in the Declaration into the response.

The remarks regarding the rejection under 35 U.S.C. 101 and 112, first paragraph points to the Declaration of Dr. Tod Bedilion. The Declaration of Dr. Tod Bedilion evaluates the provisional application 60/155,264 and indicates that the disclosure provides sequences that are useful as probes in microarrays and in drug screening assays (see pages 7-8). However, the utility guidelines indicate that the

disclosure must provide specific and substantial utilities. No specific or substantial utility is disclosed and no enablement of use is disclosed in the instant specification as the description does not disclose what disease or condition could be treated by any potential drug(s) that were identified by these assays.

First, the fact that the polynucleotide can be found in libraries of cells isolated from cancerous tissues and cells from tissues affected by inflammatory conditions would not indicate to one of skill in the art that BMDSP-1 is involved with any of these conditions. There is no evidence in the specification, for example, that BMDSP-1 is *not* expressed in healthy tissues. As a constitutively expressed gene, BMDSP-1 would not be useful in developing drugs, toxicology testing or diagnosis for any disease proposed in the Declaration. Also, there is no evidence that BMDSP-1 is *primarily* expressed in cancerous or cell lines and tissues associated with inflammation and the immune response, and thus BMDSP-1 cannot be used as a marker for these diseases. Absent a disclosure in the specification of altered levels or forms of a gene in diseased tissue as compared with the corresponding healthy tissue, the gene is not a disease marker or an appropriate target for drug discovery or toxicology testing.

The Bedilion Declaration makes mention of the "Stanford-development cDNA microarray technology" however, evidence of commercial success, while sometimes persuasive as secondary evidence of non-obviousness, is immaterial to utility and enablement. Many products have enjoyed commercial success due to fads or clever advertising, wherein the products would not have met the legal standards for utility and enablement (see also page 13 paragraph 2). In addition, the use of a probe is not

specific as no specific target is identified. Page 13 of the specification states that "BLAST searches of protein databases indicate that BMDSP-2 has chemical and structural similarities with immunoglobulin-kappa light chain". It is also stated on page 14 that BMDSP-2 is "chemically and structurally similar to MSE55". Further, page 21 of the response states that SEQ ID NO:4 shares more than 60% sequence identity with MSE55, now known to be a member of the Borg family of proteins. Generally, the art acknowledges that function cannot be predicted based solely on structural similarity to a protein found in the sequence databases. For example, Skolnick et al. (2000, Trends in Biotech. 18:34-39) state that knowing the protein structure by itself is insufficient to annotate a number of functional classes, and is also insufficient for annotating the specific details of protein function (see Box 2, p. 36). Furthermore, as stated above Alberts et. al. (The Journal of Biological Chemistry, vol. 273, pages 8616-8622, 1998) teach a sequence that is homologous to the claimed SEQ ID NO: 4, however, the encoded protein is said to be a RhoA effector protein.

Page 12 of the response characterizes the Bedilion Declaration as describing practical uses of the claimed invention in gene and protein expression monitoring applications, thus allegedly demonstrating the examiner's position to be without merit. In particular, applicant states that the Bedilion Declaration describes how the claimed expressed polynucleotide is to have been used in gene monitoring systems that were well-known at the time of the invention, and how those applications are useful in developing drugs and monitoring their activity. Applicant quotes from the Bedilion Declaration, that states that microarrays containing SEQ ID NO: 1 and 2 encoding

polynucleotides would be a more useful tool than cDNA microarrays lacking same in connection with conducting gene expression monitoring studies on proposed or actual drugs for treating cancer or immune disorders, infections and vascular disorders, for such purposes as evaluating their efficacy and toxicity. This is not found to be persuasive as any new polynucleotide can be used in a microarray, and thus this asserted utility is not specific. Examples VI-VII describe probes and microarrays, however, these are general not specific utilities.

At page 7 of the Declaration it is stated that SEQ ID NOS: 3 and 4 are expressed predominantly in gastrointestinal and reproductive tissues and in tissues associated with cancer or inflammation. However, this does not render the asserted utility specific, since the specification does not establish that BMDSP is expressed in such tissues in any way that is different from the way it is expressed in healthy forms of the same tissues. In other words, the specification does not disclose that BMDSP is expressed in cancer tissues or immune disorders at altered levels or forms. Thus, it is not a target for drug development, toxicology studies, or disease diagnosis.

The response on page 24 contend that the examiner's position is that the claimed polynucleotide cannot be useful without precise knowledge of its biological function. However, applicant is mischaracterizing the rejection of record. A specification can meet the legal requirements of utility and enablement for a new polynucleotide as long as the specification discloses a credible, specific and substantial asserted utility for the new polynucleotide, or a well-established utility for the claimed polynucleotide. The instant specification discloses that the claimed polynucleotide is

expressed in cancerous cell lines or cell lines and tissues associated with inflammation and the immune response, but the expression in the corresponding healthy tissues was not evaluated. Therefore, there is no disclosure that the claimed polynucleotide is expressed at altered levels or forms in any diseased tissue and no evidence has been brought forth during the prosecution history regarding the expression levels in healthy tissue.

The issues presented by applicant in the response and the Declaration have been considered and addressed with regard to the rejections under 35 U.S. C. 101 and 112, first paragraph enablement. The arguments were not found to be persuasive. The instant specification does not substantiate a link between the claimed polynucleotide and any cancer or immune disorder. The specification merely discloses that the claimed polynucleotide is expressed in cancerous cells or cell lines and tissues associated with inflammation and the immune response. The specification does not disclose the results of the required control in order to draw any conclusions regarding disease, namely, that the claimed polynucleotide is not expressed (or is expressed at an altered level or form) in the corresponding healthy tissues. Many genes expressed in cancer or immune disorders have nothing to do with the disease and are not targets for drug development or toxicology. For example, actin and histone genes are expressed in cancer and immune disorder tissues; they are constitutively expressed in all tissues. These are not suitable targets for drug development or toxicology studies, since disruption of these genes would kill the patient. If it had been disclosed that the claimed polynucleotide is expressed at a higher level in a particular cancerous tissue as

compared with the corresponding healthy tissue, then the skilled artisan would know that a compound that decreased expression of the polynucleotide is a good potential cancer drug. However, that is not disclosed by the instant specification. The claimed polynucleotide may very well be expressed at equivalent levels in healthy tissues. Having said that, the compound would not be a good potential cancer drug. Evidence of a differential expression might serve as a basis for use of the claimed polynucleotide as a diagnostic for a disease. However, in the absence of any disclosed relationship between the claimed polynucleotide or the protein that is encoded thereby and any disease or disorder and the lack of any correlation between the claimed polynucleotide or the encoded protein with any known disease or disorder, any information obtained from an expression profile would only serve as the basis for further research on the observation itself. "Congress intended that no patent be granted on a chemical compound whose sole 'utility' consists of its potential role as an object of use-testing." *Brenner*, 148 USPQ at 696. The disclosure does not present a substantial utility that would support the requirement of 35 U.S.C. §101, therefore, the rejection remains.

Regarding the rejection under 35 U.S.C. 112, first paragraph written description applicant cites the requirements established by the case law (page 30). Applicant states that the written description standard is fulfilled by both what is specifically disclosed and what is conventional or well known to one skilled in the art. It is disclosed on page 40 of the instant specification that a cDNA library was constructed from diseased prostate tissue and page 42 states that the sequences were assembled into full length polynucleotide sequences using programs and screened for open reading

frames. However, the specification does not disclose an open reading frame (see Example 1). The necessary written description requirements of a full open reading frame cDNA are for example, coding region, start/stop site and function of the encoded protein is essential in the description of the coding region. There is no disclosure of the function of a full length open reading frame that includes the claimed sequences. The genus of cDNAs is very large and the members of the genus are variable because of the different proteins they may encode. The claims are directed to an isolated polynucleotide encoding a polypeptide that is naturally occurring with an amino acid sequence at least 90 or 95% identical to the claimed sequences and there is no functional language or measurable end-point. Applicant's comments made on pages 30-32 are noted. In summary applicant states that function is not necessary in the claims and indicate that "mere recitation of functional characteristics of a DNA without the definition of structural features has been a common basis by which courts have found invalid claims to DNA. The point of the rejection is not to have just a recitation of functional language but to add functional language to the structure since applicant is claiming variants of the claimed product. The specification does not describe a polynucleotide encoding polypeptides having at least 90% identity to SEQ ID NOS: 3 and 4. The claims must recite a specific measurable activity such that one can recognize a polynucleotide as that claimed, or a fragment thereof.

Applicant contends that the present claims define the claimed genus through the recitation of structure and cite *Fiers* for the importance of structural features for DNA and *Lilly* for the importance of functional characteristics of DNA (see page 33).

Applicants further state that there is no reliance on functional characteristics of the claimed variants of the sequences, and if such functional recitation were included it would add to the structural characterization of the recited polynucleotides. It appears that applicant conclude that the rejection fails to provide appropriate analysis of the present claims. This argument is not persuasive. The rejection clearly stated that one of skill in the art cannot know the encoded biological activity of the variants. Additionally, the response argues that the genus is not highly variable by reciting 90% identity to SEQ ID NOS: 3 and 4 (pages 34-35). For example, the variability contemplated allows for 23 amino acid changes independent of each other, therefore would have 1.7×10^{27} different possible proteins. However, applicant's argument does not address the point of the rejection, which is that the claims lack a functional identifier. What is necessary to know is when another is in possession of the claimed cDNA. Applicants have not taught mutations that inhibit activity, for example. However, these mutations may fall within the scope of the claims as they are now written, without functional language. Therefore, the specification lacks adequate written description of these mutations and would not fall within the teachings of the specification and should not be encompassed by the claims. Thus, the rejection remains. It is noted that independent claim 23 recites fragments/variants and functional language, thus applicants are encouraged to insert an activity, which is supported by the instant specification into the claims to over come the rejection.

Note that a new ground of rejection has been instituted under 35 U.S.C. 112, first paragraph written description as the amendment introduced new matter as stated

above. Regarding the rejection under 35 U.S.C. 102, the rejection remains pending cancellation of the new matter. Therefore, applicant's arguments have been considered but are not persuasive in light of the introduction of new matter in the instant application.

Conclusion

13. Applicant's amendment necessitated the new/modified ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. No claims are presently allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hope A. Robinson whose telephone number is 571-272-0957. The examiner can normally be reached on Monday-Friday from 9:00 a.m. to 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher S.F. Low can be reached on 571-272-0951. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hope Robinson, MS

Patent Examiner

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